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21.

An apparatus for storing data according to claim ¹⁰~~30~~, wherein the controller gives the preference based on a predetermined limit time.--

REMARKS

The specification and claims 18-20, 22, 24, and 27-29 have been amended, claims 23 and 25 have been cancelled, and new claims 30-31 have been added. Claims 18-22, 24, and 26-31 are pending, with claims 18, 21-22, 24, and 26-30 being independent.

On September 29, 1998, the applicants filed a claim for priority in which they claimed the right of priority based on Japanese application No. 3-94728 filed on April 1, 1991, and pointed out that a certified copy of this Japanese application was filed on July 8, 1992, in great-grandparent application Serial No. 07/859,850.

However, the Examiner did not acknowledge the claim for priority and did not acknowledge that the certified copy of the Japanese application has been received in great-grandparent application Serial No. 07/859,850 in the Office Action Summary (the form PTO-326) of the Office Action of April 14, 1999.

Accordingly, it is respectfully requested that the Examiner acknowledge the claim for priority and acknowledge that the certified copy of the Japanese application has been received in great-grandparent application Serial No. 07/859,850 in the next Office communication.

On September 29, 1998, the applicants filed an Information Disclosure Statement (IDS) in which they cited, inter alia, U.S. patent application Serial No. 08/895,986 filed on July 17, 1997. As indicated in the IDS of September 29, pursuant to 37 CFR 1.98(a)(2)(iii), a copy of U.S. patent application Serial No. 08/895,986 was not provided with the IDS of September 29. The IDS of September 29 included a form PTO-1449 on which U.S. patent application Serial No. 08/895,986 was listed.

The Office Action of April 14 includes a copy of the form PTO-1449 from the IDS of September 29 initialed by the Examiner to indicate that all of the references listed on the form PTO-1449 have been considered except U.S. patent application Serial No. 08/895,986. The Examiner has drawn a line through U.S. patent application Serial No. 08/895,986 listed on the form PTO-1449, thereby indicating that this citation has not been considered pursuant to MPEP 609 (Original Seventh Edition, July 1998, page 600-112, right-hand column) which provides as follows in pertinent part:

Those citations not considered by the examiner will have a line drawn through the citation and any citations considered will have the examiner's initials adjacent thereto.

However, it is submitted that U.S. patent application Serial No. 08/895,986 was cited in the IDS of September 29 in conformance with 37 CFR 1.97 and 1.98 and MPEP 609, such that the Examiner was required to consider U.S. patent application Serial No. 08/895,986 by MPEP 609 (Original Seventh Edition,

July 1998, page 600-112, right-hand column) which provides as follows in pertinent part:

Examiners must consider all citations submitted in conformance with the rules and this section, and their initials when placed adjacent to the considered citations on the list or in the boxes provided on a form PTO-1449 or PTO/SB/08A and 08B provides a clear record of which citations have been considered by the Office.

and by MPEP 609 (Original Seventh Edition, July 1998, page 600-113, right-hand column) which provides as follows in pertinent part:

If a U.S. patent application number is listed on a PTO-1449 or PTO/SB/08A and 08B form or its equivalent and the examiner considers the information and initials the form, the application number will be printed on the patent.

Accordingly, it is respectfully Examiner provide another copy of the form PTO-1449 from the IDS of September 29 initialed by the Examiner to indicate that U.S. patent application Serial No. 08/895,986 listed on the form PTO-1449 has been considered with the next Office communication.

In section 4 of the Office Action of April 14, the Examiner states as follows:

The drawings with corrections including figs 2, 4-9 filed on 9/29/98 has been entered into the record. Corrections to figs. 2, 4-8 have been approved by the examiner. Corrections to fig. 9 have not been approved by the examiner because correction made to box 192 fails to match with description in the specification. I.e., the sign " < " as proposed should be -- > -- as is in specification.

The portion of the specification which relates to box 192 in Fig. 9 is page 21, line 22, through page 22, line 8, which reads as follows in its present form, with the changes made by the preliminary amendment of September 29, 1998, being indicated by brackets and underlining:

In Fig. 9, when the number of faulty discs exceeds the threshold in Step 190, or the number of faulty discs is less than or equal to the threshold in Step 190 and the [accumulating totals of the data reconstruction time] time taken to reconstruct the faulty data exceeds the limit time in Step 192, the data reconstruction processing is given preference and the processing of the normal access or read/write is stopped (Step 202). When the number of faulty discs is less than or equal to the threshold and the [accumulating totals of the data reconstruction time] time taken to reconstruct the faulty data is less than the limit time, the I/O-reconstruction control circuit 150 reads [the] a unit time from the timer 152, and compares the frequency of the processing of the normal access or read/write within that unit time with [the] a predetermined threshold (Step 194).

It is submitted that it is readily apparent from this passage that the sign "<" in box 192 in Fig. 9 in the proposed drawing corrections of July 17, 1997, is in fact correct. Also, it is noted that the sign "<" appears in box 192 in Fig. 9 as originally filed.

It is noted that the proposed corrections to Fig. 9 in the proposed drawing corrections of September 29, 1998, filed in the present application were also included in proposed drawing corrections filed on March 16, 1995, in great-grandparent application Serial No. 07/859,850 which was

examined by the same Examiner who is examining the present application. During a personal interview conducted in August 10, 1995, in connection with great-grandparent application Serial No. 07/859,850, the Examiner indicated to the applicants' representatives that the proposed drawing corrections of March 16, 1995, were in the file of great-grandparent application Serial No. 07/859,850. On September 20, 1995, the applicants filed corrected formal drawings in great-grandparent application Serial No. 07/859,850 which included the changes to Fig. 9 in the proposed drawing corrections of March 16, 1995. The changes to Fig. 9 in the proposed drawing corrections of March 16, 1995, appear in Fig. 9 of U.S. Patent No. 5,495,572 which issued from great-grandparent application Serial No. 07/859,850.

Also, it is noted that the proposed corrections to Fig. 9 in the proposed drawing corrections of September 29, 1998, filed in the present application were also included in proposed drawing corrections filed on September 27, 1995, in grandparent application Serial No. 08/534,841 which was examined by the same Examiner who is examining the present application. The Examiner approved the proposed drawing corrections of September 27, 1995, in the Office Action of February 18, 1997, and the Notice of Allowability of October 2, 1997, issued in grandparent application Serial No. 08/534,841. On December 9, 1997, the applicants filed corrected formal drawings in grandparent application Serial

No. 08/534,841 which included the changes to Fig. 9 in the proposed drawing corrections of September 27, 1995. However, none of the changes in the corrected formal drawings filed on December 9, 1997, appear in the drawings of U.S. Patent No. 5,889,938 which issued from grandparent application Serial No. 08/534,841, presumably due to an error which occurred during printing of U.S. Patent No. 5,889,938 in the PTO.

Also, it is noted that the proposed corrections to Fig. 9 in the proposed drawing corrections of September 29, 1998, filed in the present application were also included in proposed drawing corrections filed on July 17, 1997, in parent application Serial No. 08/895,886 which was examined by the same Examiner who is examining the present application. The Examiner approved the proposed drawing corrections of July 17, 1997, in the Office Action of April 20, 1998, issued in parent application Serial No. 08/895,886. On March 17, 1999, the applicants filed corrected formal drawings in parent application Serial No. 08/895,886 which included the changes to Fig. 9 in the proposed drawing corrections of July 17, 1997. The changes to Fig. 9 in the proposed drawing corrections of July 17, 1997, appear in Fig. 9 of U.S. Patent No. 5,941,993 which issued from parent application Serial No. 08/895,886.

For the reasons discussed above, it is respectfully requested that the proposed corrections to Fig. 9 in the proposed drawing corrections of September 29, 1998, filed in the present application be approved.

In section 5 of the Office Action of April 14, the Examiner has required a substitute specification including the changes to the specification requested in the preliminary amendment of September 29, 1998, stating as follows:

The preliminary amendment filed on 9/29/98 has been partially entered. The entering starting from "IN THE CLAIMS:", pages 12-20. The amendments made to the specification has not been entered because of the lengthy of these amendments. Applicant can submit a substitute specification instead of amending with lengthy.

However, it is noted that all of the changes to the specification requested in the preliminary amendment of September 29 were also made in parent application Serial No. 08/895,886, grandparent application Serial No. 08/534,841, great-grandparent application Serial No. 07/859,850, and related application Serial No. 08/895,986, all of which were examined by same Examiner who is examining the present application, and the changes to the specification were entered by the PTO in these four applications without a substitute specification being required.

Accordingly, it is respectfully requested that the requirement for a substitute specification in the present application be withdrawn, and that the changes to the specification in the preliminary amendment of September 29 be entered.

The specification has been amended to update the status of parent application Serial No. 08/895,886 which issued as U.S. Patent No. 5,941,993 on August 24, 1999, and grandparent

application Serial No. 08/534,841 which issued as U.S. Patent No. 5,889,938 on March 30, 1999.

The indication that claim 21 is allowed is acknowledged.

The specification was objected to under 37 CFR 1.175(d)(1) and MPEP 608.01(o) as failing to provide proper antecedent basis for the terms in claims 18-20, 22, and 24-29 identified in section 6 of the Office Action of April 14.

The preliminary amendment of September 29 was objected to under 35 USC 132 as introducing new matter into the specification because the Examiner is of the opinion that the features of claims 18-20 and 22-29 identified in section 7 of the Office Action of April 14 are not supported by the original disclosure. The Examiner has required that this alleged new matter be cancelled.

Claims 18-20 and 22-29 were rejected under 35 USC 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the applicants, at the time the application was filed, had possession of the claimed invention for the reasons discussed in the explanations of the objection to the specification under 37 CFR 1.175(d)(1) and MPEP 608.01(o) and the objection to the preliminary amendment of September 29 under 35 USC 132 set forth in sections 6-7 of the Office Action of April 14.

The objection to the specification under 37 CFR 1.175(d)(1) and MPEP 608.01(o), the objection to the preliminary amendment of September 29 under 35 USC 132, and

the rejection under 35 USC 112, first paragraph, have been rendered moot with respect to claims 23 and 25; are respectfully traversed with respect to claim 26; and are respectfully traversed insofar as they may be deemed to be applicable to claims 18-20, 22, 24, and 27-29 in their present form and to new claims 30-31.

It is submitted that the phrase a preference to be given to the processing of reconstructing data in claim 18 has an antecedent basis in and is supported by, for example, step 124 in Fig. 5; step 136 in Fig. 6; step 146 in Fig. 7; step 188 in Fig. 8; and step 202 in Fig. 9, and the corresponding portions of the specification, such as, for example, page 15, line 11-16, of the specification which describes step 124 in Fig. 5.

It is submitted that the phrase the controller determines the preference based on a predetermined limit time in claim 19 has an antecedent basis in and is supported by, for example, steps 132 and 136 in Fig. 6 and steps 192 and 202 in Fig. 9, and the corresponding portions of the specification, such as, for example, page 18, line 10-16, and page 18, line 27, through page 19, line 13, of the specification which describe steps 132 and 136 in Fig. 6.

It is submitted that the phrase the controller performs the processing of reconstructing data instead of processing of data read/write requests from a host according to the preference in claim 20 has an antecedent basis in and is supported by, for example, steps 132 and 136 in Fig. 6 and

steps 192 and 202 in Fig. 9, and the corresponding portions of the specification, such as, for example, page 18, line 10-16, and page 18, line 27, through page 19, line 13, of the specification which describe steps 132 and 136 in Fig. 6.

It is submitted that the phrase the controller controls a ratio of an amount of the processing of reconstructing data to an amount of the processing of data read/write requests within a unit time in claim 22 has an antecedent basis in and is supported by, for example, step 198 in Fig. 9, and the corresponding portion of the specification, such as, for example, page 22, line 15, through page 23, line 7, of the specification which describes step 198 in Fig. 9.

It is submitted that the phrase the controller controls an amount of time for the processing of reconstructing data within a unit time based on a predetermined limit time in claim 24 has an antecedent basis in and is supported by, for example, steps 192, 194, and 198 in Fig. 9, and the corresponding portion of the specification, such as, for example, page 22, line 1, through page 23, line 7, of the specification which describes steps 192, 194, and 198 in Fig. 9.

It is submitted that the phrase the controller controls an amount of the processing of reconstructing data based on a predetermined limit time in claim 26 has an antecedent basis in and is supported by, for example, steps 132 and 136 in Fig. 6 and steps 192, 194, 198, and 202 in Fig. 9, and the corresponding portions of the specification, such as, for

example, page 18, line 10-16, and page 18, line 27, through page 19, line 13, of the specification which describe steps 132 and 136 in Fig. 6.

It is submitted that the phrase the controller determines an amount of performing the processing of reconstructing data instead of the processing of data read/write requests such that the processing of reconstructing data is completed within a fixed period of time in claim 27 has an antecedent basis in and is supported by, for example, steps 132 and 136 in Fig. 6 and steps 192 and 202 in Fig. 9, and the corresponding portions of the specification, such as, for example, page 18, line 10-16, and page 18, line 27, through page 19, line 13, of the specification which describe steps 132 and 136 in Fig. 6.

It is submitted that the phrase the controller performs the processing of reconstructing data in preference to the processing of data read/write requests such that the processing of reconstructing data is completed within a fixed period of time in claim 28 has an antecedent basis in and is supported by, for example, steps 132 and 136 in Fig. 6 and steps 192 and 202 in Fig. 9, and the corresponding portions of the specification, such as, for example, page 18, line 10-16, and page 18, line 27, through page 19, line 13, of the specification which describe steps 132 and 136 in Fig. 6.

It is submitted that the phrase the controller performs the processing of reconstructing data instead of the processing of data read/write requests such that the processing of reconstructing data is completed within a fixed

period of time in claim 29 has an antecedent basis in and is supported by, for example, steps 132 and 136 in Fig. 6 and steps 192 and 202 in Fig. 9, and the corresponding portions of the specification, such as, for example, page 18, line 10-16, and page 18, line 27, through page 19, line 13, of the specification which describe steps 132 and 136 in Fig. 6.

It is submitted that the phrase the controller gives a preference to the processing of data read/write requests and performs the processing of reconstructing data within a remaining time in claim 30 has an antecedent basis in and is supported by, for example, step 122 in Fig. 5; step 134 in Fig. 6; step 144 in Fig. 7; step 184 in Fig. 8; and step 196 in Fig. 9, and the corresponding portions of the specification, such as, for example, page 15, line 2-11, of the specification which describes step 122 in Fig. 5.

It is submitted that the phrase the controller gives the preference based on a predetermined limit time in claim 31 has an antecedent basis in and is supported by, for example, steps 132 and 134 in Fig. 6 and steps 192, 194, and 196 in Fig. 9, and the corresponding portions of the specification, such as, for example, page 18, line 10-27, of the specification which describes steps 132 and 134 in Fig. 6.

Accordingly, for the reasons discussed above, it is respectfully requested that the objection to the specification under 37 CFR 1.175(d)(1) and MPEP 608.01(o), the objection to the preliminary amendment of September 29 under 35 USC 132,

and the rejection of claims 18-20, 22, 24, and 26-29 under 35 USC 112, first paragraph, be withdrawn.

It is noted that claims 18-20, 22, 24, and 26-29 were not rejected over the prior art. Accordingly, it is submitted that claims 18-20, 22, 24, and 26-29 as well as new claims 30-31 are now in condition for allowance, and an indication to that effect is respectfully requested.

As recognized by the Examiner, the references cited but not relied upon neither disclose nor suggest the present invention, and thus no further discussion of these references is deemed necessary at this time.

It is submitted that all of the Examiner's objections and rejections have been overcome, and that the application is now in condition for allowance. Reconsideration of the application and an action of a favorable nature are respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any

overpayment of fees, to the deposit account of Antonelli,
Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135
(500.31108CC4).

Respectfully submitted,

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